5. The compound coralla possess no true cœnenchyma, and one of their commonest modes of increase is by means of calicular gemmation.

As regards the first point, it must be remembered that modern investigation gives a constantly declining value to any essential difference between a tetrameral and hexameral arrangement of the septa. In many Astræids, not only is it an impossibility in the adult forms to prove the predominance of six septa, but also to derive the number present from such a type; for the total number present of those that are well developed is often not a multiple of six. And while in such a form as *Stauria* we are confronted with a distinctly marked cruciate arrangement, it is necessary to bear in mind that the transitional forms between the Stauridæ and the Cyathophyllidæ shew a decided decrease in the distinctness of such an arrangement, until in many species of typical Cyathophyllidæ, as in species of *Cyathophyllum*, *Lithostrotion*, *Acervularia*, &c., we arrive at a condition in which the septa are simply radially arranged without any indication whatever of a tetrameral type.

As regards the second point, the presence or absence of a fossula is essentially a matter of but slight importance, and at most is recognised to be but of generic value, the genera which possess and those which do not possess a fossula being grouped together in the same tribe or subfamily, while to take a more especial case, as in the genus *Cyathophyllum*, in which a small septal fossula is often present, species which possess and those which do not possess this fossula are grouped under the same genus, the character in this case being recognised as not even possessing generic value.

As regards the third point, it must be claimed that the presence of but two sizes of septa is as characteristic of a large number of the most typical Astræids (species of *Orbicella*, *Prionastræa*, &c.), as it is of the Rugose Coral. On the other hand, in the most typical of the Rugosa, in which the tetrameral arrangement is most visible, as for instance in *Stauria*, the septa are markedly of very different sizes according to the cycle to which they belong; a condition seen most clearly in a transverse section of the corallum, not only in *Stauria* but in many species of the Cyathophyllidæ, where by the union of the smaller septa with the larger, a clear idea of their inequality can be gained by the extremely variable position of their point of coalescence and its distance from the centre of the calicle. In *Strombodes* (as in *Strombodes murchisoni*) the extremely variable size of the septa is a most marked character; in species of *Endophyllum* the variability among themselves of the smaller and larger septa is distinctly seen; while in many species of *Cyathophyllum* (*Cyathophyllum stutchburyi*, *Cyathophyllum regium*, *Cyathophyllum rugosum*, *Cyathophyllum marmini*, &c.) where roughly it may be stated that the septa are alternately equal, a transverse section sohws that there is a variability in the exact length not only of the shorter septa, but also of the larger which approach the centre, for while certain of them do actually reach there, many as certainly stop short of it. It seems to me that if transverse sections of typical Astræids be taken for comparison,